

**REMARKS**

This paper is responsive to the Office Action dated August 11, 2005 (the “Office Action”).

Claims 1-113 were previously pending in the application.

No claims have been amended, canceled, or added in this paper.

Accordingly, claims 1-113 are currently pending.

Claims 1-7, 14, 16, 17, 29-35, 42, 44, 45, 57-63, 70, 72, 73, 85-91, 98, 100, and 101 stand rejected.

Claims 8-13, 15, 18-28, 36-41, 43, 46-56, 64-69, 71, 74-84, 92-97, 99, and 102-112 are under objection.

Claim 113 has been allowed.

Claims 1-3, 29-31, 57-59, and 85-87 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 6,430,150 issued to Azuma et al. (“*Azuma*”). Claims 4-7, 14, 16, 17, 32-35, 42, 44, 45, 60-63, 70, 72, 73, 88-91, 98, 100, and 101 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Azuma* in view of U.S. Patent No. 6,728,205 issued to Finn et al. (“*Finn*”). Applicant respectfully submits that the claims are patentable and respectfully requests reconsideration of the pending rejections and objections in view of the amendments and remarks presented herein.

Allowable Subject Matter

Applicant gratefully acknowledges the allowability of claim 113.

The Office Action includes objections to claims 8-13, 15, 19-28, 36-41, 43, 46-56, 64-69, 71, 74-84, 92-96, 99, and 102-112. While the present Office Action does not state a reason for these objections, Applicant notes that a previous office action, dated April 5, 2005, indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Although Applicants have not elected to amend these claims into independent form at the present time, Applicant wishes to express appreciation for the indication of allowable subject matter and reserves the right to so amend the claims at a later time.

Objections to Claims 18 and 72

The Office Action includes new objections to claims 18 and 72. Applicant notes that no grounds have been stated in the record for the objections to these claims. Applicant respectfully requests clarification of these objections. Applicant also respectfully requests a removal of the finality of the Office Action so that Applicant may have an appropriate opportunity to respond to these objections.

Rejections Under 35 U.S.C. § 102(e)

Claims 1-3, 29-31, 57-59, and 85-87 stand rejected under § 102(e) as being unpatentable over *Azuma*. While not conceding that the cited reference qualifies as prior art, but instead to expedite prosecution, Applicant has chosen respectfully to address the rejection as follows.

Applicant reserves the right, for example in a continuing application, to establish that the cited reference does not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed.

In reply to Applicant's previous remarks, the present Office Action calls attention to elements presented in FIG. 8 of *Azuma*. Office Action at 2-3. Applicant respectfully submits, however, that *Azuma* does not disclose all of the limitations of the pending claims.

*Azuma* describes a system with a failure type determining part 12 and an alternate path computing part 14. *Azuma* at col. 8, lines 14-18. These components of the *Azuma* system may be seen, for example, in FIG. 6 of *Azuma*. "In response to the determination by the failure type determining part 12, the alternate path computing part 14 computes topology information to find alternate paths by referring to the physical topology information and the logical topology information." *Id.*

In FIG. 8, *Azuma* presents a flow chart of a process of restoration from a failure. However, as illustrated by the steps 11-13 and 18, **the process in FIG. 8 does not disclose restoration steps that identify nodes having a resource necessary to support a virtual path.** In step (11), a topology updating message received from an adjacent node is passed to adjacent nodes. In step (12), the physical topology table is updated on the basis of the content of the topology updating message received. In step (13), the logical topology table is updated on the basis of the content of the topology updating message received. *Id.* at col. 10, lines 15-22, 35-37. A topology computation is executed in step (18). *Azuma* teaches that the computation of alternate paths adapted for typical failures such as those involving a path failure or a node failure is executed on the basis of the alarm message received, using an algorithm such as Dijkstra's algorithm. A physical topology table and a logical topology table are used in this computation.

*Id.* at col. 10, lines 37-43. However, these steps of the computation do not teach or suggest that nodes involved in the *Azuma* restoration are identified based on being nodes that have a resource necessary to support a virtual path.

The factors disclosed by *Azuma* for finding alternate paths include:

- **physical topology information** (*Id.* at col. 8, lines 14-18)
- **logical topology information** (*Id.*)
- **a selection algorithm such as Dijkstra's algorithm** (*Id.* at col. 8, lines 18-20)

However, none of these disclosed factors includes a consideration of the resources available on individual nodes being considered for use in a path reconstruction. The *Azuma* factors relate only to the topology of a network, and do not describe, teach, or suggest an evaluation of the nodes being considered for use in a path reconstruction. In particular, **the *Azuma* factors do not involve a determination whether a particular node would be appropriate for use in reconstructing a virtual path by virtue of having appropriate resources for the virtual path.**

In contrast, Applicant's independent claim 1 is directed to a method for restoring a virtual path in an optical network, and includes a limitation of identifying a plurality of nodes with resources. In Applicant's claim 1, the identified nodes have a resource necessary to support a virtual path. The claim also includes a limitation of identifying an alternate physical path in response to identifying the plurality of nodes with resources. These limitations are neither described, taught, nor suggested by *Azuma*.

One advantage of the method in Applicant's claim 1 is that an identified alternate physical path may be accepted by a system as being at least partially ready for use by a virtual path that requires particular resources. For example, if a particular virtual path requires a

particular minimum bandwidth or a particular type of service, the method in claim 1 may be used to pre-select (identify) nodes that have appropriate resources to meet these criteria. In contrast, the *Azuma* system selects alternate nodes based on topological characteristics, and appears merely to assume that the selected nodes would have appropriate resources for the path undergoing restoration.

Since *Azuma* does not disclose each limitation of Applicant's claim 1, independent claim 1 and all claims dependent therefrom are allowable over the cited art. Independent claims 29, 57, and 85 and all claims dependent therefrom are allowable at least for similar reasons. Accordingly, Applicant respectfully requests that the rejections under § 102(e) to claims 1-3, 29-31, 57-59, and 85-87 be withdrawn.

*The Rejection of Claims Under 35 U.S.C. §103(a)*

*Depends Upon an Improper Combination of References*

Claims 4-7, 14, 16, 17, 32-35, 42, 44, 45, 60-63, 70, 72, 73, 88-91, 98, 100, and 101 stand rejected under § 103(a) as being unpatentable over *Azuma* in view of *Finn*. While not conceding that the cited references qualify as prior art, but instead to expedite prosecution, Applicant has chosen respectfully to address the rejections as follows. Applicant reserves the right, for example in a continuing application, to establish that one or more of the cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed.

With regard to claim 4, the Office Action observes that *Azuma* fails to disclose provisioning a virtual path on a physical path between a first and a second node of an optical network, where each one of the nodes is coupled to at least one other of the nodes by a plurality

of optical links. Office Action at 3. The Office Action proposes that this limitation is met in the cited art because it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of *Azuma* to be used in the optical network of *Finn*. *Id.* at 4.

Applicant respectfully disagrees. *Azuma* is related to networks that use cross-connect units at telecommunications nodes, and to automatic restoration in a telecommunications network. *Azuma* at col. 1, lines 7-10. *Finn* relates to communication or power networks and to automatic protection switching in networks. *Finn* at col. 1, lines 17-20.

Applicant offers that the references *Azuma* and *Finn* were improperly used in combination under § 103(a) for the rejection of claim 4. For example, there is no proper motivation to modify the references as suggested. As explained in the Manual of Patent Examination and Procedure (MPEP), references may be modified in a rejection under § 103(a) “where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” MPEP § 2143.01, discussing *In re Kotzab*, 217 F.3d 1365, (Fed. Cir. 2000). However, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” *Id.*, discussing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

The Examiner suggests that the motivation for modifying the system of *Azuma* in view of *Finn* would be “to get the benefit of high-speed network communications through fiber optic cables so that a prompt restoration is achieved through high-speed fiber optic communications.” Office Action at 4. Applicant respectfully disagrees that the Examiner’s proffered observations provide adequate motivation under § 103(a) to modify the cited references.

Applicant respectfully submits that even assuming the Examiner's characterization of the cited art is correct (and Applicant does not concede this point), these observations would not motivate a person having skill in the art to modify *Azuma* in view of *Finn*, because *Azuma* by itself presents the advantages suggested by the Examiner. *Azuma* discusses networks that use high-speed communications. *Azuma* at col. 1, lines 11-14. *Azuma* discusses technology related to restoration of computer networks. *Id.* at Abstract. *Azuma* discusses the use of optical signals in networks and the detection of failures in optical links. *Id.* at col. 9, lines 21-23. Thus, a person having skill in the art would not be motivated to look beyond *Azuma* to *Finn* in order "to get the benefit of high-speed network communications through fiber optic cables so that a prompt restoration is achieved through high-speed fiber optic communications," as suggested by the Examiner.

Since the Examiner has not presented a proper motivation for the modification of *Azuma* in view of *Finn*, the Examiner has failed to make a prima facie case for obviousness in the rejection of claim 4. Further, Applicant sees no other reason to make the modifications proposed in the Office Action. At least for similar reasons, the Examiner has failed to make a prima facie case for obviousness in the rejection of claims 5-7, 14, 16-17, 32-35, 42, 44, 45, 60-63, 70, 72, 73, 88-91, 98, 100, and 101. Accordingly, Applicant respectfully requests that the rejections under § 103(a) be withdrawn.

*The Rejection of Claims Under 35 U.S.C. §103(a) Depends  
on References that Do Not Teach Each Limitation of the Claims*

Additionally, even if the modification of *Azuma* in view of *Finn* were proper under § 103(a), neither *Azuma* nor *Finn*, taken either separately or in conjunction, describe, teach, or suggest all of the limitations of the claimed invention. First, as discussed above, *Azuma* does not



disclose the limitation of identifying a plurality of nodes with resources, where the nodes with resources are nodes having a resource necessary to support a virtual path. This observation applies with equal weight to all of the pending rejections under § 103(a).

Further, such identifying is also not present in *Finn*. *Finn* relates to communication or power networks and to automatic protection switching in networks. *Finn* at col. 1, lines 17-20. *Finn* provides approaches for pre-planning or pre-computing redundant network connections that can be used when a link or a node fails in a network path. *Id.* at col. 6, lines 38-41, 45-64; col. 1, lines 44-49. The *Finn* system uses such redundancy to provide that in the event that a node fails, the remaining nodes may still be connected. *Id.* at col. 6, line 64—col. 7, line 1. The computing of the redundant network connections is carried out by an automatic protection switch (APS) processor. *Id.* at col. 15, lines 36-42. The APS processor in *Finn* calculates the redundant network connections using information and other rules provided to the APS processor. *Id.* Several factors are listed in *Finn* as examples of information that may be provided to the APS processor for consideration: the number of nodes to be connected in the network, the number of links which exist in the network, traffic load, and information identifying which paths are available to connect particular nodes. *Id.* at col. 15, lines 18-25. Another piece of information indicates which nodes and links should be used for rerouting in the event of a failure. *Id.* at col. 15, lines 24-25.

*Finn* does not, however, present any considerations that should be used for determining which nodes and links should be used for rerouting in the event of a failure. The APS processor in *Finn* may be instructed on which nodes and links should be used for rerouting, but *Finn* does not describe any decision-making to identify appropriate nodes. *Finn* does not discuss the selection of appropriate nodes for rerouting, either by the APS processor or by other components that may provide information to the APS processor. In particular, *Finn* does not describe, teach,



or suggest the identification of an alternate physical path in response to identifying a plurality of nodes with resources.

Claim 4 depends on claim 2, which depends in turn on claim 1, and thus includes the limitation of identifying an alternate physical path in response to the identifying the plurality of nodes with resources. This limitation, among others, is not present in *Finn*. As discussed above, this limitation is also not present in *Azuma*. Therefore, the cited art does not disclose all the limitations of claim 4, and claim 4 is allowable. At least for similar reasons, claims 5-7, 14, 16, 17, 32-35, 42, 44, 45, 60-63, 70, 72, 73, 88-91, 98, 100, and 101 are also allowable.

Accordingly, for this reason as well, Applicant respectfully requests that the rejections under § 103(a) be withdrawn.

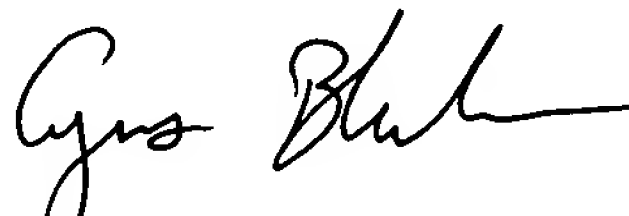
**CONCLUSION**

Applicant submits that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia, 22313-1450, on 2005 NOV 11.

Cyrus F. Bharucha 2005 Nov 11  
Attorney for Applicant Date of Signature

Respectfully submitted,



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